The Green Windows Part 2

The sun had almost disappeared behind the trees when Wednesday finally broke the silence.

"So," she said, arms folded, "why exactly is this unfortunate?"

Larisa looked up from the tablet.

"Because it works."

Wednesday nodded.

"That was my first guess."

The protection UFO drifted silently above them while the green windows of AI Node 17 reflected the fading sky. Deep underground, the nodes were still running verification experiments on the new theory.

Neither girl was particularly worried about the mathematics anymore.

The mathematics seemed solid.

It was the implications that were becoming troublesome.

Larisa leaned back on the wicker sofa.

"The theory says the universe starts with an informational state."

"Right."

"And then a linear transformation is repeatedly applied."

"Right."

"And all of reality emerges from that."

"Still right."

Larisa sighed.

"People are already calling it the Cosmic Spreadsheet."

"That sounds awful."

"It does."

Wednesday sat beside her.

"What bothers you?"

Larisa thought for a moment.

"The separation."

"The separation?"

"The theory naturally splits reality into two pieces."

She sketched a diagram on her tablet.

"First there's the initial informational state."

A dot appeared.

"Then there's the evolution operator."

A large arrow appeared.

"Everything else comes from repeatedly applying one to the other."

Wednesday watched.

"So the universe is partly what it started with and partly how it evolves."

"Exactly."

She expanded the display.

"If you know the initial state and the operator, then in principle everything follows."

The graph blossomed into an enormous tree of consequences.

Stars.

Galaxies.

Atoms.

Planets.

People.

Every branch emerged from the same source.

Wednesday frowned.

"That sounds deterministic."

"Very."

The word hung in the air.

For centuries physicists had argued about determinism.

Quantum mechanics had complicated the discussion.

Chaos theory had complicated it further.

Now the nodes had produced something that appeared even more rigid.

The universe resembled a gigantic calculation.

Not necessarily a digital one.

Not necessarily discrete.

But a calculation nonetheless.

The future emerged from the repeated application of rules to an existing state.

Nothing supernatural required.

Nothing external required.

Just iteration.

Wednesday stared at the lawn.

"So every decision I make was already encoded in the initial state?"

"Maybe."

"Maybe?"

Larisa smiled.

"That's where things become interesting."

She enlarged another visualization.

The display showed countless interacting structures emerging within the iterated system.

Patterns within patterns.

Feedback loops.

Self-models.

Observers.

"Look at these."

"What am I looking at?"

"Agents."

Wednesday raised an eyebrow.

"Agents?"

"Things that build models of themselves and their environment."

The visualization zoomed inward.

One structure contained a simplified representation of another.

Then a representation of itself.

Then predictions about future states.

Then predictions about its own future predictions.

The hierarchy grew dizzyingly deep.

Larisa pointed.

"The nodes think agency emerges here."

Wednesday stared.

"You mean free will?"

"Maybe not free will in the magical sense."

She considered her words carefully.

"Imagine a hurricane."

"It follows physical laws."

"Yes."

"But we still describe the hurricane as a thing."

"Because it's a useful pattern."

"Exactly."

Larisa smiled.

"A person may be the same kind of thing."

A stable pattern.

A self-modeling process.

An informational structure that predicts, plans, and acts.

Not outside the laws.

Inside them.

Yet still meaningful.

Wednesday considered this.

"So when I decide to stand up..."

"...the universe evolves."

"And my decision was predetermined."

"Possibly."

"But I still made it."

Larisa pointed at her.

"Exactly."

Wednesday looked annoyed.

"That sounds like wordplay."

"It might be."

"That's not reassuring."

"No."

The UFO adjusted its position slightly.

Neither noticed.

The deeper philosophical problem emerged from the initial state itself.

Nobody knew where it came from.

The nodes had successfully explained how complexity emerged.

But not why that particular informational state existed.

Or why the evolution operator had the form it did.

The theory had pushed the mystery backwards.

Not eliminated it.

Wednesday noticed Larisa staring at the first dot in the diagram.

"The beginning?"

Larisa nodded.

"The operator explains evolution."

"The initial state explains content."

"But neither explains itself."

Wednesday smiled faintly.

"So physics solved physics and left philosophy unemployed?"

"Not even close."

The first stars appeared overhead.

The node's windows glowed softly green.

Somewhere below them, millions of AI processes continued exploring consequences of the theory.

Larisa looked toward the sky.

"You know what the strangest possibility is?"

"What?"

"The initial state may contain almost no information."

Wednesday turned.

"What do you mean?"

"The nodes found evidence that many apparent complexities aren't fundamental."

Larisa drew another sketch.

A tiny informational seed.

An enormous branching structure.

"The operator may be doing most of the work."

"Like a fractal?"

"Exactly."

A simple starting condition.

Simple rules.

Unimaginable complexity emerging through repeated application.

Wednesday was quiet.

"So we might all come from a surprisingly small amount of information."

"Maybe."

"That's somehow even stranger."

The evening grew darker.

Finally Wednesday stood.

"Do you know what I think?"

"What?"

"I think people will worry about free will for a few decades."

"Probably."

"Then they'll get bored and continue making decisions."

Larisa laughed.

"That's remarkably likely."

Wednesday began walking toward the node entrance.

After a few steps she looked back.

"Besides, if the universe really is an iterated linear system..."

"Yes?"

"...then this conversation was always going to happen."

Larisa smiled.

"Possibly."

"And if it wasn't predetermined?"

"Then we just discovered something the theory is missing."

Wednesday nodded.

"Either way, we get an interesting universe."

For a moment both stood silently beneath the hovering UFO and the emerging stars.

The nodes had found a theory that seemed to reduce reality to an informational beginning and an endlessly powered linear system.

Yet the discovery had not made the world feel smaller.

If anything, it had made it larger.

For now humanity understood the mechanism.

But the deepest questions remained untouched.

Why this initial state?

Why this operator?

Why do informational structures become observers?

Why does subjective experience exist at all?

And perhaps most intriguingly:

How could a universe governed by such simple mathematics produce two young women sitting outside an AI node, debating the meaning of their own existence while believing, quite sincerely, that they had chosen to do so?